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09/727,113	11/29/2000	Charles John Henderson Razzell	US000301	2410

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EXAMINER	
TORRES, JUAN A	

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/727,113	RAZZELL, CHARLES JOHN HENDERSON	
	Examiner	Art Unit	
	Juan A. Torres	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☒ Claim(s) *1-5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11172004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to because:

In FIG. 2 block 370 recites "T/2" it is suggested to be changed to "π/2" how it is described in the disclosure in page 7 line 4.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show:

In FIG.2 block 340 as described in page 6 line 32 of the specification.

In FIG.3 block S* as described in page 7 line 14 of the specification.

In FIG.3 block S1, S2 and S3 as described in page 7 line 17 of the specification.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

In page 4 lines 7-10 the recitation "It is an object of the invention to provide a different method for tracking multi-path components of a signal transmitted in a fading environment. It is another object" is suggested to be changed to "It is an object".

In page 4 line 20 the recitation "integer" is suggested to be changed to "positive integer".

In page 4 line 22 the recitation "integer" is suggested to be changed to "positive integer".

In page 4 line 23 the recitation "integer" is suggested to be changed to "positive integer".

In page 4 line 24 the recitation "integer" is suggested to be changed to "positive integer".

In page 4 line 26 the recitation "integer" is suggested to be changed to "positive integer".

In page 4 line 28 the recitation "fourth integer" is suggested to be changed to "fourth positive integer".

In page 4 line 28 the recitation "third integer" is suggested to be changed to "third positive integer".

In page 4 line 29 the recitation "integer" is suggested to be changed to "positive integer".

In page 6 line 11 the recitation "fc" is suggested to be changed to "FC" as indicated in FIG. 2.

In page 6 line 32 the block 340 doesn't shown in the FIG. 2.

In page 7 line 14 the block S* doesn't shown in the FIG. 3.

In page 7 line 16 the recitation "410-414" is suggested to be changed to "410, 412, and 414".

In page 7 line 17 the block S1, S2 and S3 doesn't shown in the FIG. 3.

In page 7 line 21 the recitation "410-414" is suggested to be changed to "410, 412, and 414".

In page 7 line 24 the recitation "410-414" is suggested to be changed to "410, 412, and 414".

In page 7 line 25 the recitation "410-414" is suggested to be changed to "410, 412, and 414".

In page 7 line 30 the recitation "410-414" is suggested to be changed to "410, 412, and 414".

In page 8 lines 1-2 the recitation "410-414" is suggested to be changed to "410, 412, and 414".

In page 8 line 5 the recitation "410-414" is suggested to be changed to "410, 412, and 414".

In page 8 line 13 the recitation "tE" is suggested to be changed to "tE (see FIG. 6)".

In page 9 line 16 the recitation "digital signal processing" is suggested to be changed to "digital signal processing (DSP)".

In page 9 line 25 the recitation "integer" is suggested to be changed to "positive integer".

In page 9 line 26 the recitation "integer" is suggested to be changed to "positive integer".

In page 10 lines 4-8 the recitation "The signal V2 is obtained from a comparison of a first product **K3*E** of the early value E and an integer K3 derived in the unit 520 with a second product K4*L of the late value L and an integer K4 derived in the unit 540. In this embodiment K3 is smaller than K4 (K3/K4<1). V2 is 1 when K4*E>**K3*L** is true as shown in Table 1, V2 is 0 otherwise." is contradictory, vague and indefinite. It is not clear if should be **K3*E** or **K3*L**.

In page 10 line 5 the recitation "integer" is suggested to be changed to "positive integer".

In page 10 line 12 the recitation "510-540" is suggested to be changed to "510, 520, 530 and 540".

In page 10 line 14 the recitation "510-540" is suggested to be changed to "510, 520, 530 and 540".

In page 11 lines 2-3 the recitation "410-440" is suggested to be changed to "510, 520, 530 and 540".

In page 10 line 3 the recitation "integers" is suggested to be changed to "positive integers".

Appropriate correction is required.

Claim Objections

Claims 1-5 are objected to because of the following informalities:

As per claim 1 in line 9, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 1 in line 11, the recitation "integer and" is suggested to be changed to "positive integer and".

As per claim 1 in line 11, the recitation "first integer" is suggested to be changed to "first positive integer".

As per claim 1 in line 12, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 1 in line 15, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 1 in line 17, the recitation "fourth integer" is suggested to be changed to "fourth positive integer".

As per claim 1 in line 17, the recitation "third integer" is suggested to be changed to "third positive integer".

As per claim 1 in line 18, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 3 in line 1, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 3 in line 2, the recitation "third integer" is suggested to be changed to "third positive integer".

As per claim 3 in line 2, the recitation "second integer" is suggested to be changed to "second positive integer".

As per claim 3 in line 3, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 11, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 13, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 14, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 15, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 16, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 18, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 19, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 20, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 4 in line 24, the recitation "products;" is suggested to be changed to "products; and,"

As per claim 5 in line 9, the recitation "integer" is suggested to be changed to "positive integer".

As per claim 5 in line 11, the recitation "integer and" is suggested to be changed to "positive integer and".

As per claim 5 in line 11, the recitation "first integer" is suggested to be changed to "first positive integer".

As per claim 5 in line 12, the recitation "integer;" is suggested to be changed to "positive integer; and,"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 1-3 the computation K1*E and K2*L obtain the same objective than K3*E and K4*L. It is unclear why the same thing is doing twice without obtain any gain

value. In the disclosure applicants express two incongruent vague and indefinite ideas of K3*E and K3*L (see specification objections).

As per claim 4 in lines 19-20 applicants recite "third integer smaller than the third integer". How can an integer be smaller than himself?

If claim 4 is read as claim1 for a Rake receiver than the recitation suppose to be "third integer smaller than the fourth integer" again see rejection of claim 1 applicant is doing the same thing twice.

Claim 3 is rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a method of tracking a resolved signal asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. The detector output will always generate the value zero independent of all the other parameters. If K1=K3 and K2=K4 then V1=V2, so the detector output will be always zero.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 3 is rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a method of tracking a resolved signal asserted utility or a well established utility.

If K1=K3 and K2=K4 then V1=V2, so the detector output will always be zero independent of all the other parameters.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This rejection is based on the assumption that in claim 1 that K3 > K4, so claim 1 will recite:" A method of tracking a resolved signal, the method comprising: determining a first value representative of an energy of the signal at a first instant before a presumed occurrence of a local optimum of the energy of the signal; determining a second value representative of the energy at a second instant after the presumed occurrence of the local optimum; calculating a first product of a first integer and the first value and calculating a second product of a second integer and the second value, with the first integer smaller than the second integer; generating a first logical value from a comparison between the first and the second products; calculating a third product from a third integer and the first value and calculating a fourth product from a fourth integer and the second value, with the fourth integer smaller than the third integer; generating a second logical value from a comparison between the third and the fourth products; and, generating a detector output signal from a difference between the first logical value and the second logical value".

Claims 1-5 are rejected under 35 U.S.C. 103(a) as obvious over Crabtree et al. (US 4606051).

As per claim 1 and 4 Crabtree et al. (US 4606051) disclose a method of tracking a resolved signal, the method comprising: determining a first value representative of an energy of the signal at a first instant before a presumed occurrence of a local optimum of the energy of the signal (figure 2A point E, figure 14 block 1402, column 9 lines 5-6 and lines 13-16); determining a second value representative of the energy at a second instant after the presumed occurrence of the local optimum (figure 2A point L, figure 14 block 1402, column 9 lines 5-6 and lines 13-16); Crabtree et al. (US 4606051) doesn't teach calculating a first product of a first integer and the first value and calculating a second product of a second integer and the second value, with the first integer smaller than the second integer; generating a first logical value from a comparison between the first and the second products; calculating a third product from a third integer and the first value and calculating a fourth product from a fourth integer and the second value, with the third integer smaller than the fourth integer; generating a second logical value from a comparison between the third and the fourth products; and, generating a detector output signal from a difference between the first logical value and the second logical value. From elemental mathematics it is known that: a) if K1, K2, K3 and K4 are positive integers and K1 < K2 then K1/K2 < 1 and K2/K1 > 1. Then K1*E > K2*L is equivalent to K1/K2 > L/E, then 1 > K1/K2 > L/E, this means that 1 > L/E or equivalently, E > L. b) if K4 < K3 then K4/K3 < 1 and K3/K4 > 1.K4*L > K3*E is equivalent to K4/K3 > E/L, then 1 > K4/K3 > E/L, this means that 1 > E/L or equivalently, L > E, so the applicant is comparing E and L with a margin of "quantification" error defined by the integers K1, K2, K3 and K4; an equivalent comparison is done by Crabtree et al. (US

4606051) (figure 2 block 160 and figure 14, column 4 lines 65-66); and, generating a detector output signal from a difference between the first and the second value (figure 2 block 160 and figure 14, column 9 lines 15-32). This technique of comparison of two values with a "quantification" error can be combined with the method described by Crabtree et al. (US 4606051). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method described by Crabtree et al. (US 4606051) with a quantification error technique to obtain a faster convergence of the method.

As per claim 2 Crabtree et al. (US 4606051) disclose that the first and the second instants are symmetrical in relation to the presumed occurrence of the optimum (figure 2A shows that points E and L are symmetrical in relation to the maximum). Crabtree et al. (US 4606051) doesn't specifically say that point E and L are symmetrical in relation to the maximum. Points E and L can be chosen symmetrical in relation to the maximum It would have been obvious to one having ordinary skill in the art at the time the invention was made to use symmetrical points in order to reduce the complexity of the algorithm and in order to time for the algorithm to elect points E and L symmetrical in relation to the maximum.

As per claim 3 Crabtree et al. (US 4606051) doesn't teach that the first integer is equal to the third integer and the second integer is equal to the fourth integer. This action is equivalent to say that the "quantification" error in the E side and in the L side is the same. It would have been obvious to one having ordinary skill in the art at the time

the invention was made to use the same "quantification" error in the E side and in the L side of the energy signal in order to reduce the complexity of the algorithm.

As per claim 5 Crabtree et al. (US 4606051) disclose a method comprising: determining a first value representative of an energy of the signal at a first instant before a presumed occurrence of a local optimum of the energy of the signal (figure 2A point E, column 4 line 59-65); determining a second value representative of the energy at a second instant after the presumed occurrence of the local optimum (figure 2A point L, column 4 line 59-65); Crabtree et al. (US 4606051) doesn't teach to calculate a first product of a first integer and the first value and calculating a second product of a second integer and the second value, with the first integer smaller than the second integer; generating a first detector output signal from a comparison between the first and the second products . From elemental mathematics it is known that: a) if K1 and K2 are positive integers and K1 < K2 then K1/K2 < 1 and K2/K1 > 1. Then K1*E > K2*L is equivalent to K1/K2 > L/E, then 1 > K1/K2 > L/E, this means that 1 > L/E or equivalently, E > L, so the applicant is comparing E and L with a margin of "quantification" error defined by the integers K1 and K2; an equivalent comparison is done by Crabtree et al. (US 4606051) (figure 2 block 160 and figure 14, column 4 lines 65-66); and, generating a detector output signal from a difference between the first and the second value (figure 2 block 160 and figure 14, column 9 lines 15-32). This technique of comparison of two values with a "quantification" error can be combined with the method described by Crabtree et al. (US 4606051). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method described by Crabtree

et al. (US 4606051) with a quantification error technique to obtain a faster convergence of the method.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAT 11-29-2004

MOHAMMED GHAYOUR
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